# GV-N28-1GH-B

NVIDIA® GeForceT™ GTX 280 Graphics Accelerator

## User's Manual

Rev. 101

12MM-NX28GB-101R

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**Notice**

Please do not remove any labels on this graphics card. Doing so may void the warranty of this card.

Due to rapid change in technology, some of the specifications might be out of date before publication of this this manual. The author assumes no responsibility for any errors or omissions that may appear in this document nor does the author make a commitment to update the information contained herein.

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## Declaration of Conformity

We, Manufacturer/Importer
(full address)

**G.B.T. Technology Trading GMbH**
**Bullenkoppel 16, 22047 Hamburg, Germany**

declare that the product
(description of the apparatus, system, installation to which it refers)

**VGA Card**
GV-N28-1GH-B
is in conformity with
(reference to the specification under which conformity is declared)
in accordance with 89/336 EEC-EMC Directive

| | | | |
|---|---|---|---|
| ☐ **EN 55011** | Limits and methods of measurement of radio disturbance characteristics of industrial, scientific and medical (ISM) high frequency equipment | ☒ **EN 61000-3-2** | Disturbances in supply systems caused |
| | | ☒ **EN 61000-3-3** | Disturbances in supply systems caused by household appliances and similar electrical equipment "Voltage fluctuations" |
| ☐ **EN 55013** | Limits and methods of measurement of radio disturbance characteristics of broadcast receivers and associated equipment | ☒ **EN 55024** | Information Technology equipment-Immunity characteristics-Limits and methods of measurement |
| ☐ **EN 55014-1** | Limits and methods of measurement of radio disturbance characteristics of household electrical appliances, portable tools and similar electrical apparatus | ☐ **EN 50082-1** | Generic immunity standard Part 1: Residual, commercial and light industry |
| | | ☐ **EN 50082-2** | Generic immunity standard Part 2: Industrial environment |
| ☐ **EN 55015** | Limits and methods of measurement of radio disturbance characteristics of fluorescent lamps and luminaries | ☐ **EN 55014-2** | Immunity requirements for household appliances tools and similar apparatus |
| ☐ **EN 55020** | Immunity from radio interference of broadcast receivers and associated equipment | ☐ **EN 50091- 2** | EMC requirements for uninterruptible power systems (UPS) |
| ☒ **EN 55022** | Limits and methods of measurement of radio disturbance characteristics of information technology equipment | | |
| ☐ **DIN VDE 0855** ☐ **part 10** ☐ **part 12** | Cabled distribution systems; Equipment for receiving and/or distribution from sound and television signals | | |

☒ **CE marking** CE (EC conformity marking)

**The manufacturer also declares the conformity of above mentioned product with the actual required safety standards in accordance with LVD 2006/95/EC**

| | | | |
|---|---|---|---|
| ☐ **EN 60065** | Safety requirements for mains operated electronic and related apparatus for household and similar general use | ☒ **EN 60950** | Safety for information technology equipment including electrical business equipment |
| ☐ **EN 60335** | Safety of household and similar electrical appliances | ☐ **EN 50091-1** | General and Safety requirements for uninterruptible power systems (UPS) |

**Manufacturer/Importer**

(Stamp)

Date : Jun. 5, 2008

Signature : Timmy Huang

Name : Timmy Huang

## DECLARATION OF CONFORMITY

Per FCC Part 2 Section 2.1077(a)

**Responsible Party Name: G.B.T. INC. (U.S.A.)**

**Address: 17358 Railroad Street**
**City of Industry, CA 91748**

**Phone/Fax No: (818) 854-9338/ (818) 854-9339**

hereby declares that the product

**Product Name: VGA Card**

**Model Number:** GV-N28-1GH-B

Conforms to the following specifications:

FCC Part 15, Subpart B, Section 15.107(a) and Section 15.109 (a),Class B Digital Device

**Supplementary Information:**

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful and (2) this device must accept any inference received, including that may cause undesired operation.

Representative Person's Name: ERIC LU

Signature: Eric Lu

Date: Jun. 5, 2008

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(Note) This item will show up when you connect two monitors.

# 1. Introduction

## 1.1. Features

- Powered by **NVIDIA® GeForce™ GTX 280** Graphics Processing Unit (GPU)
- Supports PCI Express 2.0
- Integrated with 1 GB GDDR3 memory
- Supports DirectX 10
- Supports NVIDIA® SLI™ (Scalable Link Interface) technology (Note 1)
- Supports 2 DVI-I connectors
- Supports HDMI connector (by adapter)
- Supports 2 D-Sub connectors (by adapter)
- Supports HDCP (High-Bandwidth Digital Content Protection) technology

## 1.2. Minimum System Requirements

- **Hardware**
  - 500-watt power supply or greater with minimum 12V current rating of 36A. (Note 2)
  - Intel® Pentium®/Core™ 2 or AMD Athlon™/Phenom™
  - 512 MB of system memory; 2 GB or more for best performance
  - Optical drive for software installation (CD-ROM or DVD-ROM drive)

- **Operating System**
  - Windows® Vista
  - Windows® XP with Service Pack 2 (SP2)
  - Windows® XP Professional x64 Edition

- **SLI™ Configuration**

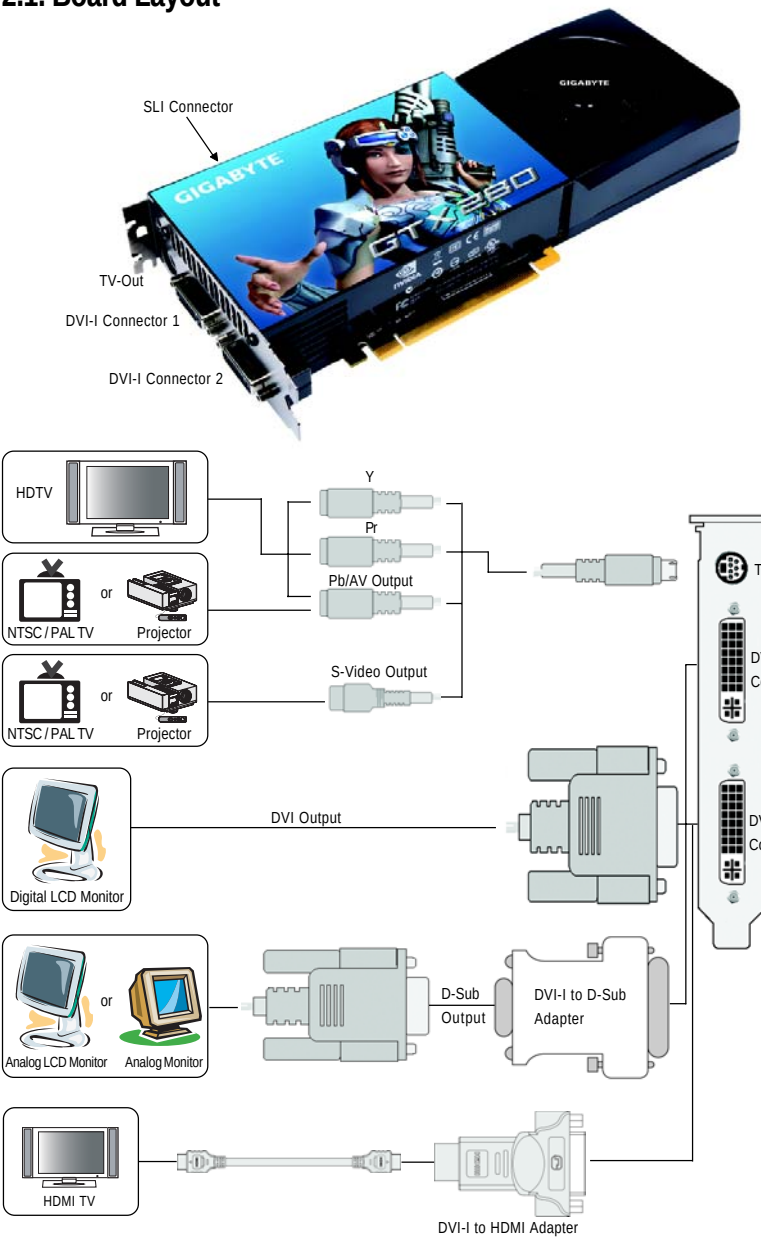
  If you are planning on using this graphics card as part of an SLI system, the following are required:
  - An SLI certified motherboard with two/three PCIe x16 slots and correct chipset driver
  - Two GV-N28-1GH-B for SLI configuration;
    Three GV-N28-1GH-B for 3-way SLI configuration
  - A power supply with 900-watt or above is recommended
  - An SLI bridge connector or 3-way SLI bridge connector

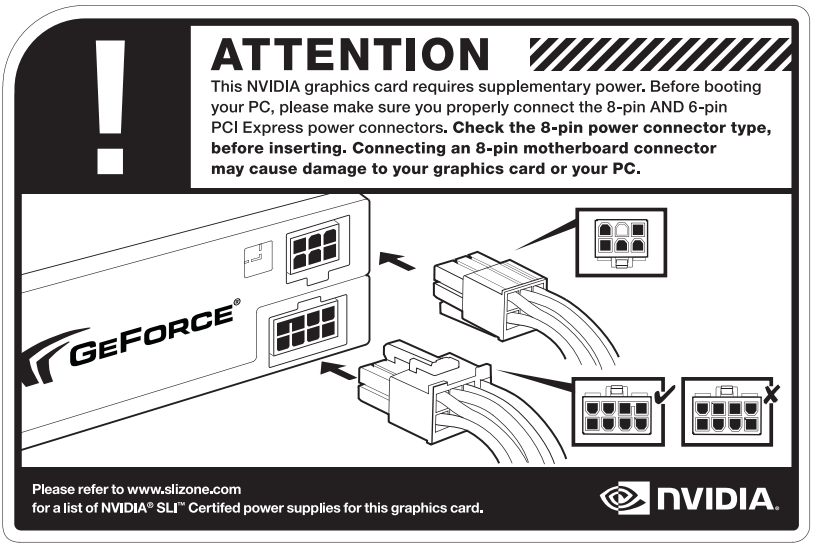
(Note 1) SLI technology requires a PCI Express motherboard with two/three x16 physical connectors. Graphics cards working in an SLI configuration must be with the same model name (e.g. GV-N28-1GH-B) and from the same vendor (e.g. GIGABYTE TECHNOLOGY).

(Note 2) The minimum system power requirement recommended here is based on a PC configured with an Intel Core 2 Extreme processor (QX6700).

# 2. Hardware Installation

## 2.1. Board Layout




ATTENTION
This NVIDIA graphics card requires supplementary power. Before booting your PC, please make sure you properly connect the 8-pin AND 6-pin PCI Express power connectors. Check the 8-pin power connector type, before inserting. Connecting an 8-pin motherboard connector may cause damage to your graphics card or your PC.
GeForce
Please refer to www.slizone.com
for a list of NVIDIA® SLI™ Certifed power supplies for this graphics card.
NVIDIA

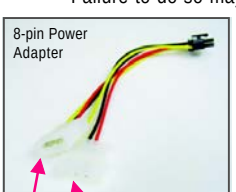
The GV-N28-1GH-B graphics card is a performance optimized high-end card. Power is taken from the PCI Express host bus as well as the 8-pin and 6-pin PCI Express power connectors.
Without auxiliary power provided to the GV-N28-1GH-B graphics card, an LED on the bracket goes red and the graphics card will not boot. In addition, the connector that is not adequately powered will turn red.
The table below outlines the different possible scenarios as well as the resulting behaviors.

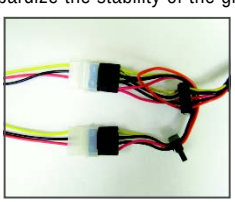
Configuration with External PCIe Connectors:

| 8-pin PCIe Power Connector | 6-pin PCIe Power Connector | Result |
|---|---|---|
| Connected | Connected | Full Power |
| Not Connected | Connected | LED light is red- graphics card will not boot |
| Connected | Not Connected | LED light is red- graphics card will not boot |
| Not Connected | Not Connected | LED light is red- graphics card will not boot |

CAUTION

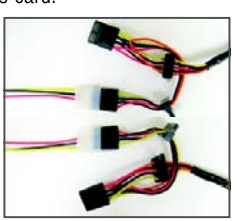
We suggest you using a power supply that provides a 8-pin PCI Express power cable instead of using the included 8-pin power adapter. If you want to use the included 8-pin power adapter, make sure at least 12V/15A current is supplied to each 4-pin power connector on this adapter. Failure to do so may jeopardize the stability of the graphics card.



**Incorrect Connection**

(The two 4-pin power connectors on the adapter are connected to the same system power supply cable.)



**Correct Connection**

(The two 4-pin power connectors on the adapter are connected to two independent system power supply cables.)

Expansion cards contain very delicate Integrated Circuit (IC) chips. To protect them against damage from static electricity, you should follow some precautions whenever you work on your computer.

1. Turn off your computer and unplug power supply.
2. Use a grounded wrist strap before handling computer components. If you do not have one, touch both of your hands to a safely grounded object or to a metal object, such as the power supply case.
3. Place components on a grounded antistatic pad or on the bag that came with the components whenever the components are separated from the system.

The card contains sensitive electric components, which can be easily damaged by static electricity, so the card should be left in its original packing until it is installed.

Unpacking and installation should be done on a grounded anti-static mat. The operator should be wearing an anti-static wristband, grounded at the same point as the anti-static mat.

Inspect the card carton for obvious damage. Shipping and handling may cause damage to your card. Be sure there are no shipping and handling damages on the card before proceeding.

- **DO NOT APPLY POWER TO YOUR SYSTEM IF THE GRAPHICS CARD IS DAMAGED.**
- **In order to ensure that your graphics card can work correctly, please use official GIGABYTE BIOS only. Using non-official GIGABYTE BIOS might cause problem(s) on the graphics card.**

## 2.2. Hardware Installation

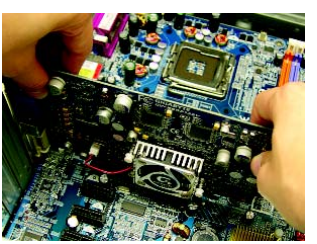
Now that you have prepared your computer, you are ready to install your graphics card.

**To remove the existing graphics card:**

Step 1.
Power off the computer and monitor, then disconnect the display cable from the back of your computer.

Step 2.
Remove the computer cover. If necessary, consult your computer's manual for help in removing the cover.

Step 3.
Remove any existing graphics card from your computer.



**To install your new graphics card:**

Step 1.
Locate the PCI Express x16 slot. If necessary, remove the metal cover from this slot; then align your graphics card with the PCI Express x16 slot, and press it in firmly until the card is fully seated.

* Please make sure that the gold edge connector of the graphics card is securely inserted.

Step 2.
Replace the screws to fasten the card in place, and replace the computer cover.

CAUTION

After installation, remember to connect the power cable to your graphics card, or the system will not boot (refer to page 6 to see the details). Do not touch the card when it's operating to prevent system instability.

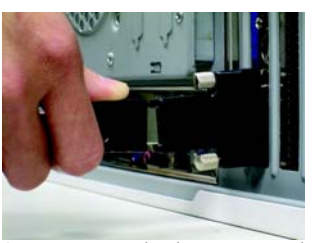
Step 3.
Plug the display cable into your graphics card; then turn on the computer and monitor. To connect a flat panel directly to your graphics card, use the DVI-I connector. To connect a D-Sub monitor to the DVI-I connector, plug the DVI-I to D-Sub adapter into the DVI-I connector, then plug the monitor cable into the adapter. Or use the DVI-I to HDMI adapter to connect an HDMI monitor. (Note: Only the DVI-I Connector 2 supports the DVI-I to HDMI adapter.)

To TV / VCR

To Flat Panel Display

Connect a flat panel

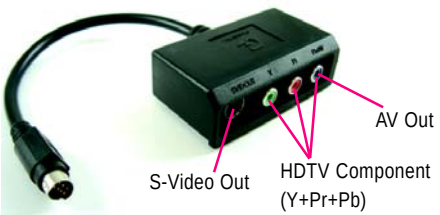
Connect a D-Sub monitor via DVI-I to D-Sub adapter



Connect a HDMI monitor via DVI-I to HDMI adapter

You are now ready to proceed with the installation of the graphics card driver. Please refer to next chapter for detailed instructions.

## GIGABYTE Video Adapter




Connect to the TV-Out port on
the graphics card.

(1) Connecting HDTV
Connect your HDTV cables to the video adapter according to the corresponding color.
(Y= Green, Pr= Red, Pb= Blue)

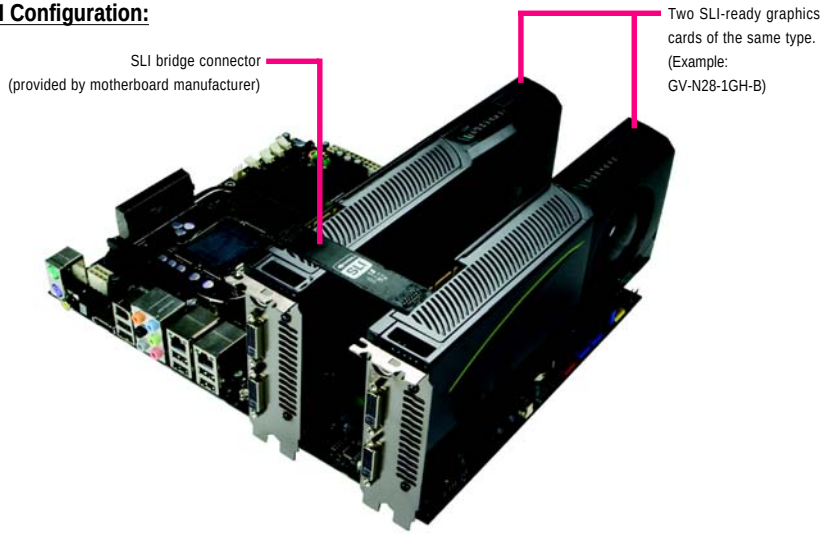
(2) Connecting S-Video
If your TV has a S-Video connection, connect the S-Video cable from your TV to the S-Video Out port on the adapter.

(3) Connecting AV Output
If your TV has a Composite video connection, you can connect the RCA cable from your TV to the AV Out port on the adapter.

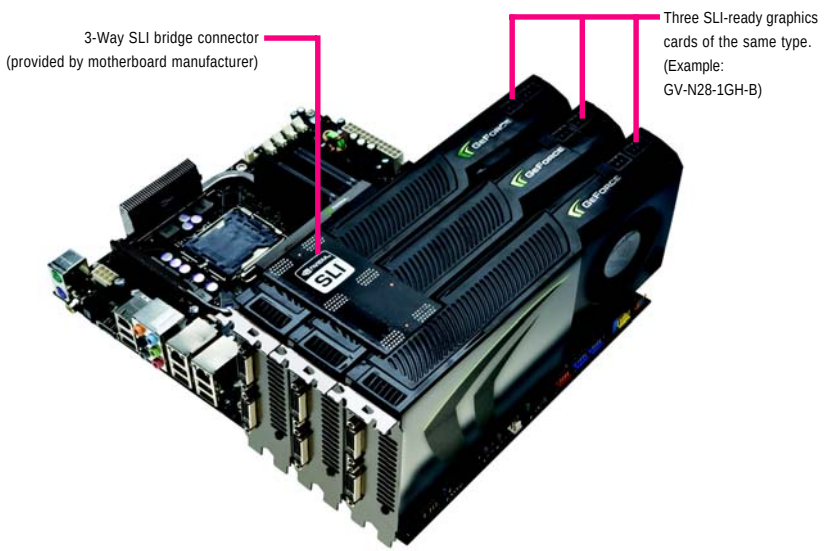
## How NVIDIA® SLI™ (Scalable Link Interface) technology works:

In an SLI configuration, two/three SLI-ready graphics cards of the same model and the same manufacturers are connected together via SLI bridge connector in a system that provides two/three x16 PCI Express slots to scale graphics performance. The picture below shows that two and three graphics cards are linked in parallel in an SLI configuration.

### SLI Configuration:




### 3-Way SLI Configuration:



# 3. Software Installation

In this manual, we assume that your CD-ROM drive letter to be Drive D:
The installation of drivers is very simple. When you insert the driver CD into your CD-ROM drive, you can see the autorun window (if it does not show up, run "D:\setup.exe"). Then you can follow the instructions to setup your graphics card driver. (Please follow the subsection "3.1.3 Driver Installation" to install the driver for your graphics card.)

## 3.1. Windows® XP Driver and Utilities Installation

### 3.1.1. Operating System Requirements

Notice the following guidelines before installing the drivers:

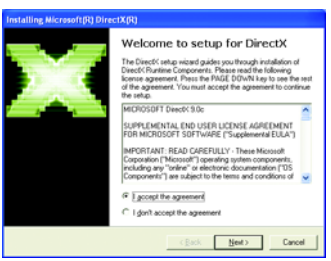
1. First make sure your system has installed DirectX 9.0c or later version.
2. Make sure your system has installed the appropriate motherboard drivers (for the motherboard drivers, please contact the motherboard manufacturer.)

## 3.1.2. DirectX Installation

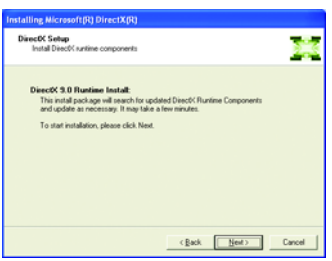
Install Microsoft DirectX to enable 3D hardware acceleration support for Windows XP to achieve better 3D performance.

NOTE For software MPEG support in Windows XP, you must install DirectX first. Users who run Windows XP with Service Pack 2 or above do not need to install DirectX separately.

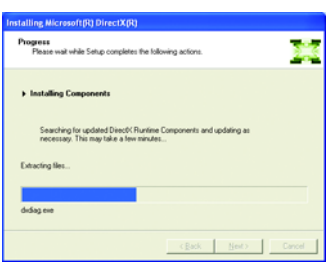
Step 1.
When the autorun window shows up, click the **Install DirectX 9** item.



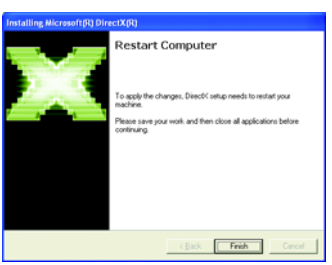

Step 2. Choose **I accept the agreement** and click the **Next** button.


Installing Microsoft(R) DirectX(R)
DirectX Setup
Install DirectX runtime components
DirectX 9.0 Runtime Install:
This install package will search for updated DirectX Runtime Components and update as necessary. It may take a few minutes.
To start installation, please click Next.
< Back
Next >
Cancel

Step 3. Click the **Next** button.


Installing Microsoft(R) DirectX(R)
Progress
Please wait while Setup completes the following actions.
Installing Components
Searching for updated DirectX Runtime Components and updating as necessary. This may take a few minutes...
Extracting files...
dxdiag.exe
< Back
Next >
Cancel

The system is installing the components.


Installing Microsoft(R) DirectX(R)
Restart Computer
To apply the changes, DirectX setup needs to restart your machine.
Please save your work and then close all applications before continuing.
< Back
Finish
Cancel

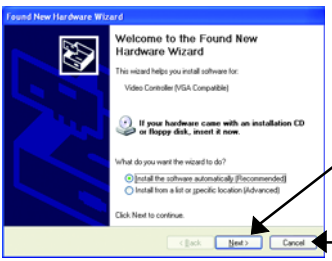
Step 4. Click **Finish** to restart computer.
Then the DirectX 9 installation is completed.

## 3.1.3. Driver Installation

### A. New Hardware Found

When the graphics card is inserted into your computer for the first time, the operating system will detect the graphics card automatically and display a New Hardware Found message. The following are step-by-step installation instructions.

**Step 1: Found New Hardware Wizard: Video Controller (VGA Compatible)**

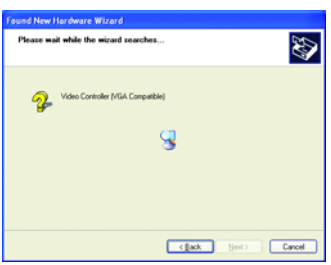

Found New Hardware Wizard
Welcome to the Found New Hardware Wizard
This wizard helps you install software for:
Video Controller (VGA Compatible)
If your hardware came with an installation CD or floppy disk, insert it now.
What do you want the wizard to do?
Install the software automatically (Recommended)
Install from a list or specific location (Advanced)
Click Next to continue.
< Back
Next >
Cancel

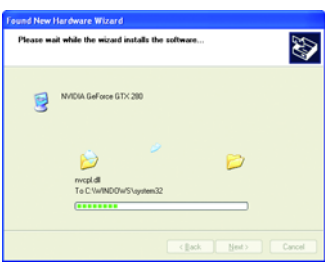
Click the **Next** button to install the driver. (Insert the driver CD-ROM that came with your graphics card.)

Or click the **Cancel** button to install the driver from the autorun window.

**Step 2: Found New Hardware Wizard: Searching and Installing**

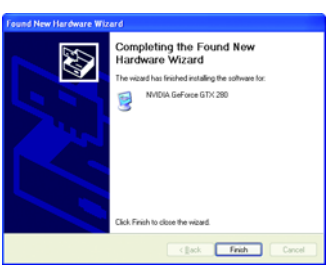
The wizard will search for the driver and install it automatically.




**Step 3: Found New Hardware Wizard: Finish**

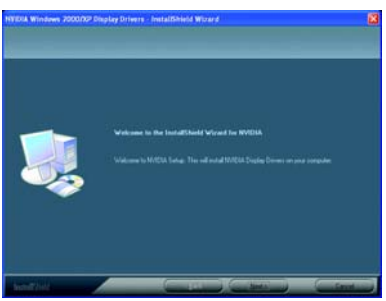
Click the **Finish** button to finish the installation.


Found New Hardware Wizard
Completing the Found New Hardware Wizard
The wizard has finished installing the software for:
NVIDIA GeForce GTX 280
Click Finish to close the wizard.
< Back
Finish
Cancel

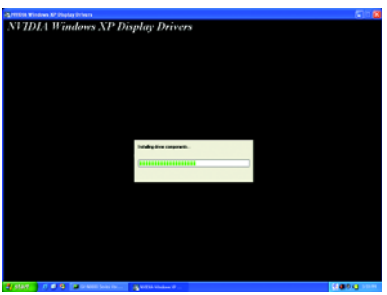
## B. Driver Installation (Autorun Window)

Insert the driver CD-ROM into your CD-ROM drive. The autorun window will appear. If it does not show up, please run "D:\setup.exe".

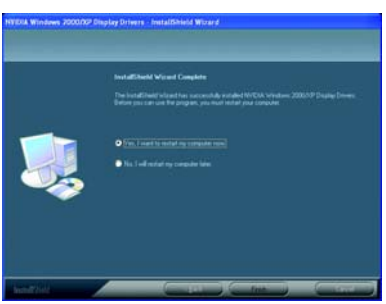
Step 1.
When the autorun window shows up, click the **Install Display Driver** item.



Step 2. Click the **Next** button.




The system is installing the components.



Step 3. Click the **Finish** button to restart the computer. Then the driver installation is completed.

### 3.1.4. Taskbar Icon

After installing the graphics card driver, you will find an NVIDIA icon in your system tray. Click this icon to open the control panel.

Right click the NVIDIA icon to enter the **NVIDIA Control Center.**

You can adjust the properties of the graphics card here.

## 3.1.5. Display Properties Pages

To access **Display Properties** pages, right-click on desktop and then select **Properties**. The **Display Properties** dialog box shows the information of display adapter, color, the range of display area, and the refresh rate.

### Settings (Resolutions and Color Quality for Windows)

You may adjust the screen resolution and color quality settings in this dialog box.

You can move the slider to change the resolution.

You can click the item to change the color quality.

Click the **Advanced** button for advanced settings

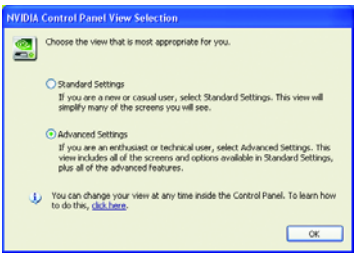
### NVIDIA Control Panel

After pressing the **Advanced** button in **Settings**, you'll see the **Plug and Play Monitor and NVIDIA GeForce GTX 280 Properties** dialog box. Click the **GeForce GTX 280** tab. (You can also click the NVIDIA icon in your system tray and select **NVIDIA Control Panel**.)

Plug and Play Monitor and NVIDIA GeForce GTX 280 ...
General
Adapter
Monitor
Troubleshoot
Color Management
GeForce GTX 280
NVIDIA
Looking for the NVIDIA Display Control Panel?
All of the NVIDIA control panels have been consolidated into a single application, the NVIDIA Control Panel. It can be launched from the Windows Control Panel or by right-clicking on the Windows desktop.
Start the NVIDIA Control Panel
OK
Cancel
Apply

Access the **GeForce GTX 280** tab page to launch the NVIDIA Control Panel.

- All of the NVIDIA control panels have been consolidated into a single application, the NVIDIA Control Panel. Click the **Start the NVIDIA Control Panel** button to open the NVIDIA Control Panel.


NVIDIA Control Panel View Selection
Choose the view that is most appropriate for you.
Standard Settings
If you are a new or casual user, select Standard Settings. This view will simplify many of the screens you will see.
Advanced Settings
If you are an enthusiast or technical user, select Advanced Settings. This view includes all of the screens and options available in Standard Settings, plus all of the advanced features.
You can change your view at any time inside the Control Panel. To learn how to do this, click here.
OK

Select the view of the NVIDIA Control Panel that is most appropriate for you.

- Standard Settings
- Advanced Settings

The following pages provide details on configuring advanced settings.

In the NVIDIA Control Panel, select a category to alter specific NVIDIA display settings.
The categories are:

- 3D Settings
- Display
- Video & Television

In the NVIDIA Control Panel, change a view if you want.
The supported modes are:

- Standard
- Advanced
- Custom

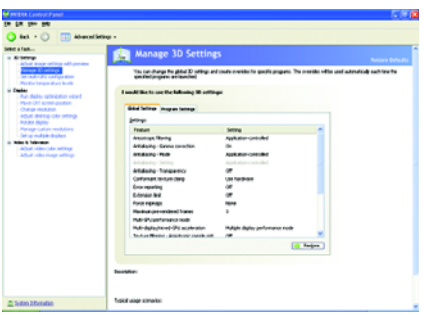
## 3D Settings

Tasks in the 3D Settings pages allow you to do the following:

- Change the image and rendering settings of your 3D applications and games that utilize Direct3D and OpenGL technology.
- Override the shipped clocked frequencies of your GPU and GPU memory to increase your GPU performance.
- Assign specific 3D settings to a game so that these settings automatically load when a game is launched.

■ Adjust Image Settings with Preview

If you are unfamiliar with 3D technology or not an advanced graphics user, use the Adjust Image Settings with Preview page to preview any changes you make for improved image quality and rendering.




■ Manage 3D Settings (Note 1)

The Manage 3D Settings page enables you to establish default 3D settings to use for all your Direct3D or OpenGL applications and to establish a unique set of 3D settings for a particular game or application.

■ Set Multi-GPU Configuration (Note 2)

Multi-GPU technology allows you to use two or more GPUs together. This results in significant improvements in rendering performance and image quality.

**Note:**

It is recommended that you set to **Multi-GPU mode** to enhance the graphics card's performance.

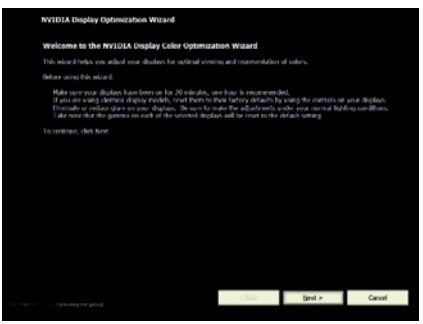
(Note 1) This item is present only in Advanced view mode.

(Note 2) This item will show up when you install two graphics cards with the same model name and from the same vendor.

## Display

A variety of display features enable you to further manipulate and configure your display settings to optimize the use of your displays. Tasks in the Display pages allow you to do the following:

- Run display optimization wizard
- Move CRT screen position
- Change resolution
- Adjust desktop color settings
- Rotate display
- Manage custom resolutions (Note 1)
- Run multiple display wizard (Note 2)
- Set up multiple displays




■ Run Display Optimization Wizard

This wizard helps you adjust your displays for optimal viewing and repersentation of colors.

(Note 1) This item is present only in Advanced view mode.

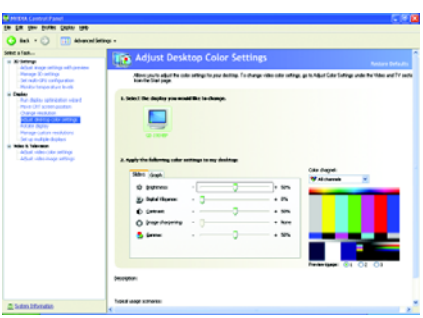
(Note 2) This item will show up when you connect two monitors.

■ Move CRT Screen Position

You can use your mouse (by clicking on the arrow keys on this page) or the arrow keys on your keyboard to adjust the position of your desktop to better fit your display. This is a useful alternative to using the controls (buttons) on your actual physical display.

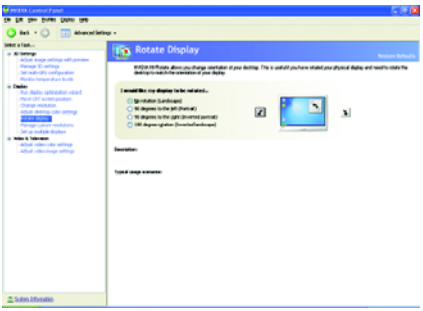
■ Change Resolution

Using the Change Resolution controls, you can change the color setting, reduce screen flickering, or adjust the amount of information appearing on your display.



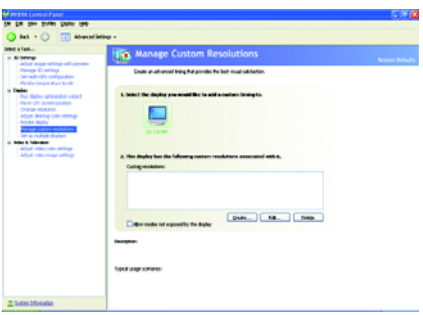

■ Adjust Desktop Color Settings

Use this page to set the contrast, sharpness, and color depth (Digital Vibrance) of the images on your desktop. These changes will not affect any video playback. To change video color settings, go to Adjust Video Color Settings under the Video and TV section from the Start page.




■ Rotate Display

The NVIDIA Rotate features enable you to change the orientation of your desktop to portrait, landscape, and inverted modes. This is useful if you have rotated your physical display and need to rotate the desktop to match the orientation of your display.




■ Manage Custom Resolutions (Note 1)

If you are an advanced user, you can create custom timing modes with the width, height, bit-color depth, and the refresh rate etc. The Advanced Timing page enables you to adjust timings for your graphics card in order to support a variety of different display timings for ultimate flexibility for analog CRT and DVI connections. You can use the advanced Change Resolution Attributes page to view custom display modes you have saved in the Create Custom Timings page.

NVIDIA Multi-Display Setup Wizard
Welcome to the NVIDIA nView Multi-Display Setup Wizard
This wizard will help you enable and customize your multi-display setup.
To continue, click Next.
< Back
Next >
Cancel

■ Run Multiple Display Wizard (Note 2)

This wizard will help you enable and customize your multi-display setup.

(Note 1) This item is present only in Advanced view mode.
(Note 2) This item will show up when you connect two monitors.

■ Set up Multiple Displays

NVIDIA nView technology enables you to view your desktop in one of several multi-display modes to make the best use of the displays (monitors) that are connected to your computer.

## Dual-Monitor Setup

You can set the display to output from two monitors on the **Set up Multiple Displays** page.

Select your preferred nView display modes here.

- Only use one display (Single)
- The same on both display (Clone)
- As one large horizontal desktop (Horizontal span)
- As one large vertical desktop (Vertical span)
- Configured independently from each other (Dualview)

**(1) The same on both display (Clone)**

Clone mode indicates that both displays in the display pair show images of the same desktop.

Clone Mode

**(2) As one large horizontal desktop (Horizontal span)**

Horizontal Span mode indicates that both displays in the display pair function as one wide virtual desktop. The width of each display is half the width of the total virtual desktop width.

Horizontal Span Mode

**(3) As one large vertical desktop (Vertical span)**

Vertical Span mode indicates that both displays in the display pair function as one tall virtual desktop. The height of each display is half the height of the total virtual desktop height.

Vertical Span Mode

**(4) Configured independently from each other (Dualview)**

Dualview mode indicates that both displays in the display pair function as one virtual desktop. Unlike Horizontal Span or Vertical Span mode, Dualview treats each display as a separate device. This means that the taskbar will not be stretched across displays and 3D applications are not accelerated as efficiently as when the application spans displays.

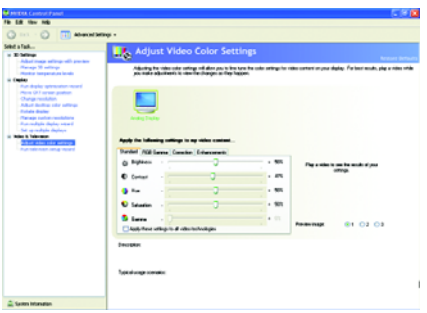
Dualview Mode

| | | |
|---|---|---|
| Display Matrix | Model | GV-N28-1GH-B |
| | CRT+HDMI | Yes |
| | CRT+DVI | Yes |
| | DVI+HDMI | Yes |
| | DVI+HDMI+CRT | No |
| | DVI +DVI | Yes |
| | CRT+CRT | Yes |

## Video & Television

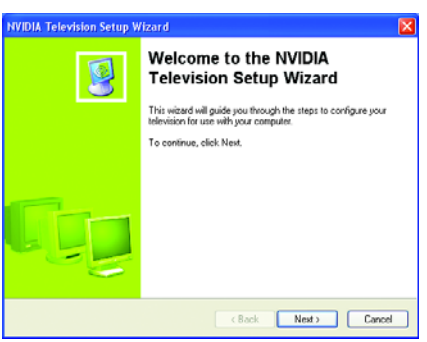
Video and television features are similar to those for analog and digital displays and include features specific to television and HDTV (high definition television) technology for optimal viewing.Tasks in the Video & Television pages allow you to do the following:

- Adjust your television picture quality and video color settings for the best possible viewing in its environment.
- Change the position and size of the desktop video to best fit your television or HDTV (high definition television) screen.
- Change the signal format to use for your standard television or HDTV as well as change country-specific signal or the HDTV format.
- Enable full screen video mirroring.




■ Adjust Video Color Settings

Use the controls on this page to fine tune the color settings for video content on your display. Select one of the test images to monitor your changes. For best results, play a video while you make adjustment to view the changes as they happen.


NVIDIA Television Setup Wizard
Welcome to the NVIDIA Television Setup Wizard
This wizard will guide you through the steps to configure your television for use with your computer.
To continue, click Next.
< Back
Next >
Cancel

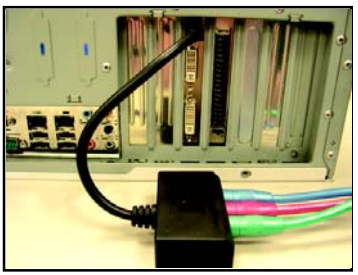
■ Run Television Setup Wizard (Note)

The wizard will guide you through the steps to configure your television for use with your computer.

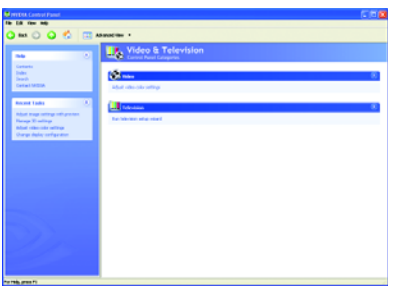
(Note) This item will show up when you connect a television.

## HDTV Setup

Follow the steps below to connect an HDTV to your system using the included component video adapter.



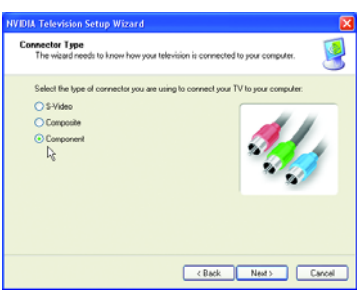
Step 1:
Connect the HDTV component cable to the adapter according to the corresponding color. (Y= Green, Pr= Red, Pb= Blue). Connect the TV Out cable from the adapter to the TV Out port on your graphics card.




Step 2:
Go to NVIDIA Control Panel. Select the **Run television setup wizard** (Note) item in the **Video & Television** page.

NVIDIA Television Setup Wizard
Welcome to the NVIDIA Television Setup Wizard
This wizard will guide you through the steps to configure your television for use with your computer.
To continue, click Next.
< Back
Next >
Cancel

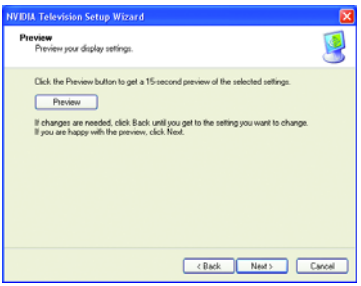
Step 3:
When the Television Setup Wizard appears, click **Next**.


NVIDIA Television Setup Wizard
Connector Type
The wizard needs to know how your television is connected to your computer.
Select the type of connector you are using to connect your TV to your computer.
S-Video
Composite
Component
< Back
Next >
Cancel

Step 4:
Select **Component** in the **Connector Type** screen.

Step 5:
Select a definition type for your HDTV (depending on the specifications of your HDTV) and click **Next**.

(Note) This item will show up when you connect a television.


NVIDIA Television Setup Wizard
Preview
Preview your display settings.
Click the Preview button to get a 15-second preview of the selected settings.
Preview
If changes are needed, click Back until you get to the setting you want to change.
If you are happy with the preview, click Next.
< Back
Next >
Cancel

Step 6:

Click the **Preview** button to preview the selected settings. Then click **Next**.

Step 7:

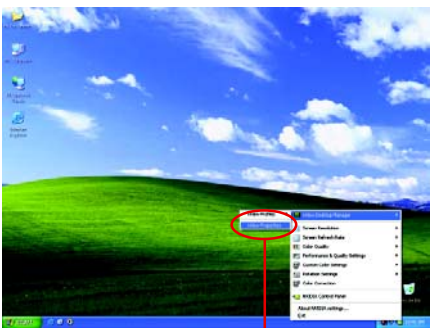
Click **Finish** to apply the new television settings.

## 3.1.6. nView Properties Pages (Note)

**nView** is a set of desktop tools designed to help you be more productive when using your graphics card. With **nView** you can set up multiple desktops to work with your applications. Multiple desktops give you extra desktop areas on which to run your applications so you won't have to crowd several open application windows on one desktop.

### Enabling the nView Desktop Manager Features:

Click the NVIDIA icon in your system tray and select **nView Properties** under **nView Destop Manager**. Click the **Enable** button to turn on all the nView Desktop Manager features.

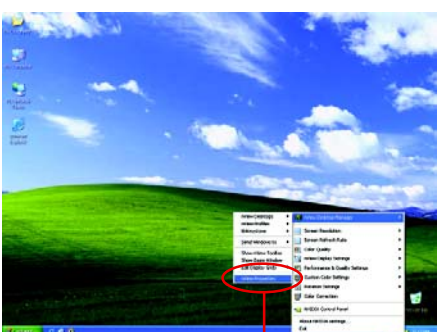


Step 1: Click **nView Properties**.

Step 2: Click **Enable**.

### Accessing the nView Properties Pages:

To access the **nView** properties page, you can click the NVIDIA icon in your system tray and select **nView Properties** under **nView Desktop Manager**.



Click the item to start configuringing nView features.

(Note) This item will show up when you connect two monitors.

## nView Desktop Management properties

- This tab contains information about the nView Desktop Manager. The Setup Wizard can also be accessed from this tab.

## nView Profiles properties

- This tab contains a record of all nView display settings for easy software setup.

## nView Windows properties

- This tab allows you to control window and dialog box placement when using multiple monitors.

## nView Applications properties

- This tab allows you to control nView settings depending on different applications.

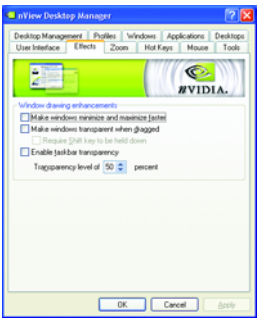
## nView Desktops properties

- This tab allows you to create up to 32 unique desktops.

## nView User Interface properties

- This tab allows for customization of the nView user interface.

## nView Effects properties




- This tab provides special windows effects that you can apply to your applications.

## nView Zoom properties

- This tab provides dynamic zoom functionality on the desktop. Also enable full screen video playback via the video mirroring control button.

## nView Hot Keys properties

- This tab lets you perform various actions with shortcut keys or key combinations.

## nView Mouse properties

- This tab can modify and extend mouse behavior with kinematic actions.

## nView Tools properties

- This tab can improve nView functionality for mobile and desktop users.

# 4. Troubleshooting Tips

The following troubleshooting tips may help if you experience problems. Contact your dealer or GIGABYTE for more advanced troubleshooting information.

- Check that the card is seated properly in the PCI Express x16 slot.
- Ensure that the display cable is securely fastened to the card's display connector.
- Make sure that the monitor and computer are plugged in and receiving power.
- If necessary, disable any built-in graphics capabilities on your motherboard. For more information, consult your computer's manual or manufacturer.
  (NOTE: Some manufacturers do not allow the built-in graphics to be disabled or to become the secondary display.)
- Make sure you selected the appropriate display device and graphics card when you install the graphics driver.
- Restart your computer.
  Press <F8> on your keyboard after system starts up. When the Windows Advanced Options Menu appears, select Safe Mode and press <Enter>.
  After getting into Safe Mode, in Device Manager check whether the driver for the graphics card is correct.
- For more assistance, use the Troubleshooting Guide located in the Windows Help or contact your computer manufacturer.

If necessary, adjust your monitor's setting using monitor's adjust panel to make the screen look focused, crisp, and sharp. (Please refer to the monitor's manual.)

# 5. Appendix

## 5.1. How to Reflash the BIOS in MS-DOS Mode

1. Extract the downloaded Zip file to your hard disk(s) or floppy disk. This procedure assumes drive A.
2. Restart the computer in MS-DOS mode. (You may need a startup disk to restart the computer in MS-DOS mode.)
3. Change the command prompt to A:\>.
4. To back up the current BIOS, at the A:\> prompt, type `[BIOS flash utility name] -s [BIOS file name]` **(example: gvf18 -s 28GHB.f1)** and press **Enter**.
5. To flash BIOS, at the A:\> prompt, type `[BIOS flash utility name] -p [BIOS file name]` **(example: gvf18 -p 28GHB.f2)** and press **Enter**.
6. Wait until it's done, then restart your computer.

## 5.2. Resolutions and Color Depth Table (In Windows XP)

GeForce GTX 280 Single Display Standard Modes

| Display Screen Resolution | Refresh Rate (Hz) | Color Depth (bpp) 8bpp(256 color) Standard mode | 16bpp(65K color) High mode | 32bpp(16.7M) True mode |
|---|---|---|---|---|
| **320 x 200** | 60~75 | ✓ | ✓ | ✓ |
| **320 x 240** | 60~75 | ✓ | ✓ | ✓ |
| **400 x 300** | 60~75 | ✓ | ✓ | ✓ |
| **480 x 360** | 60~75 | ✓ | ✓ | ✓ |
| **512 x 384** | 60~75 | ✓ | ✓ | ✓ |
| **640 x 400 (16:10)** | 60~75 | ✓ | ✓ | ✓ |
| **640 x 480** | 60~240 | ✓ | ✓ | ✓ |
| **720 x 480** | 60 | ✓ | ✓ | ✓ |
| **720 x 576** | 50~60 | ✓ | ✓ | ✓ |
| **800 x 600** | 60~240 | ✓ | ✓ | ✓ |
| **848 x 480** | 60~240 | ✓ | ✓ | ✓ |
| **960 x 600 (16:10)** | 60~240 | ✓ | ✓ | ✓ |
| **1024 x 768** | 60~200 | ✓ | ✓ | ✓ |
| | 240 | ✓ | ✓ | X |
| **1088 x 612 (16:9)** | 60~200 | ✓ | ✓ | ✓ |
| | 240 | ✓ | ✓ | X |
| **1152 x 864** | 60~170 | ✓ | ✓ | ✓ |
| | 200 | ✓ | ✓ | X |
| **1280 x 720 (16:9)** | 60~150 | ✓ | ✓ | ✓ |
| | 170 | ✓ | ✓ | X |
| **1280 x 768** | 60~150 | ✓ | ✓ | ✓ |
| | 170 | ✓ | ✓ | X |
| **1280 x 800** | 60~150 | ✓ | ✓ | ✓ |
| | 170 | ✓ | ✓ | X |
| **1280 x 960** | 60~150 | ✓ | ✓ | ✓ |
| | 170 | ✓ | ✓ | X |
| **1280 x 1024** | 60~150 | ✓ | ✓ | ✓ |
| | 170 | ✓ | ✓ | X |
| **1360 x 768** | 60~150 | ✓ | ✓ | ✓ |
| | 170 | ✓ | ✓ | X |
| **1600 x 900 (16:9)** | 60~120 | ✓ | ✓ | ✓ |
| | 140~150 | ✓ | ✓ | X |
| **1600 x 1024** | 60~100 | ✓ | ✓ | ✓ |
| | 120 | ✓ | ✓ | X |

To be continued...

| Display Screen Resolution | Refresh Rate (Hz) | Color Depth (bpp) 8bpp(256 color) Standard mode | 16bpp(65K color) High mode | 32bpp(16.7M) True mode |
|---|---|---|---|---|
| **1600 x 1200** | 60~100 | ✓ | ✓ | ✓ |
| | 120 | ✓ | ✓ | X |
| **1920 x 1080 (16:9)** | 60~85 | ✓ | ✓ | ✓ |
| | 100 | ✓ | ✓ | X |
| **1920 x 1200 (16:10)** | 60~85 | ✓ | ✓ | ✓ |
| | 100 | ✓ | ✓ | X |
| **1920 x 1440** | 60~85 | ✓ | ✓ | ✓ |
| **2048 x 1536** | 60~85 | ✓ | ✓ | ✓ |
| **2560 x 1600 (Dual-Link)** | 60 | ✓ | ✓ | ✓ |

* This table is for reference only. The actual resolutions supported depend on the monitor you use.

# Regulatory Statements

## Regulatory Notices

This document must not be copied without our written permission, and the contents there of must not be imparted to a third party nor be used for any unauthorized purpose. Contravention will be prosecuted. We believe that the information contained herein was accurate in all respects at the time of printing. GIGABYTE cannot, however, assume any responsibility for errors or omissions in this text. Also note that the information in this document is subject to change without notice and should not be construed as a commitment by GIGABYTE.

## Our Commitment to Preserving the Environment

In addition to high-efficiency performance, all GIGABYTE motherboards fulfill European Union regulations for RoHS (Restriction of Certain Hazardous Substances in Electrical and Electronic Equipment) and WEEE (Waste Electrical and Electronic Equipment) environmental directives, as well as most major worldwide safety requirements. To prevent releases of harmful substances into the environment and to maximize the use of our natural resources, GIGABYTE provides the following information on how you can responsibly recycle or reuse most of the materials in your "end of life" product.

## Restriction of Hazardous Substances (RoHS) Directive Statement

GIGABYTE products have not intended to add and safe from hazardous substances (Cd, Pb, Hg, Cr+6, PBDE and PBB). The parts and components have been carefully selected to meet RoHS requirement. Moreover, we at GIGABYTE are continuing our efforts to develop products that do not use internationally banned toxic chemicals.

## Waste Electrical & Electronic Equipment (WEEE) Directive Statement

GIGABYTE will fulfill the national laws as interpreted from the 2002/96/EC WEEE (Waste Electrical and Electronic Equipment) directive. The WEEE Directive specifies the treatment, collection, recycling and disposal of electric and electronic devices and their components. Under the Directive, used equipment must be marked, collected separately, and disposed of properly.

## WEEE Symbol Statement

The symbol shown below is on the product or on its packaging, which indicates that this product must not be disposed of with other waste. Instead, the device should be taken to the waste collection centers for activation of the treatment, collection, recycling and disposal procedure. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local government office, your household waste disposal service or where you purchased the product for details of environmentally safe recycling.

- When your electrical or electronic equipment is no longer useful to you, "take it back" to your local or regional waste collection administration for recycling.
- If you need further assistance in recycling, reusing in your "end of life" product, you may contact us at the Customer Care number listed in your product's user's manual and we will be glad to help you with your effort.

Finally, we suggest that you practice other environmentally friendly actions by understanding and using the energy-saving features of this product (where applicable), recycling the inner and outer packaging (including shipping containers) this product was delivered in, and by disposing of or recycling used batteries properly. With your help, we can reduce the amount of natural resources needed to produce electrical and electronic equipment, minimize the use of landfills for the disposal of "end of life" products, and generally improve our quality of life by ensuring that potentially hazardous substances are not released into the environment and are disposed of properly.

## China Restriction of Hazardous Substances Table

The following table is supplied in compliance with China's Restriction of Hazardous Substances (China RoHS) requirements:

关于符合中国《电子信息产品污染控制管理办法》的声明
Management Methods on Control of Pollution from Electronic Information Products
(China RoHS Declaration)

产品中有毒有害物质或元素的名称及含量
Hazardous Substances Table

| 部件名称(Parts) | 有毒有害物质或元素(Hazardous Substances) | | | | | |
|---|---|---|---|---|---|---|
| | 铅(Pb) | 汞(Hg) | 镉(Cd) | 六价铬(Cr(VI)) | 多溴联苯(PBB) | 多溴二苯醚(PBDE) |
| PCB板<br>PCB | ○ | ○ | ○ | ○ | ○ | ○ |
| 结构件及风扇<br>Mechanical parts and Fan | × | ○ | ○ | ○ | ○ | ○ |
| 芯片及其他主动零件<br>Chip and other Active components | × | ○ | ○ | ○ | ○ | ○ |
| 连接器<br>Connectors | × | ○ | ○ | ○ | ○ | ○ |
| 被动电子元器件<br>Passive Components | × | ○ | ○ | ○ | ○ | ○ |
| 线材<br>Cables | ○ | ○ | ○ | ○ | ○ | ○ |
| 焊接金属<br>Soldering metal | ○ | ○ | ○ | ○ | ○ | ○ |
| 助焊剂，散热膏，标签及其他耗材<br>Flux, Solder Paste, Label and other Consumable Materials | ○ | ○ | ○ | ○ | ○ | ○ |

○：表示该有毒有害物质在该部件所有均质材料中的含量均在SJ/T11363-2006标准规定的限量要求以下。
Indicates that this hazardous substance contained in all homogenous materials of this part is below the limit requirement SJ/T 11363-2006

×：表示该有毒有害物质至少在该部件的某一均质材料中的含量超出SJ/T11363-2006标准规定的限量要求。
Indicates that this hazardous substance contained in at least one of the homogenous materials of this part is above the limit requirement in SJ/T 11363-2006

对销售之日的所受售产品，本表显示我公司供应链的电子信息产品可能包含这些物质。注意：在所售产品中可能会也可能不会含有所有所列的部件。
This table shows where these substances may be found in the supply chain of our electronic information products, as of the date of the sale of the enclosed products. Note that some of the component types listed above may or may not be a part of the enclosed product.